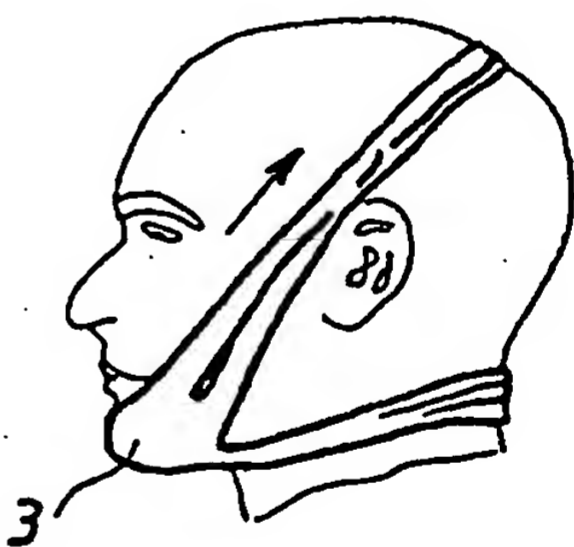


PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>5</sup> : A61F 5/56</p>	<p>A1</p>	<p>(11) International Publication Number: WO 94/20051 (43) International Publication Date: 15 September 1994 (15.09.94)</p>
<p>(21) International Application Number: PCT/AU94/00099 (22) International Filing Date: 4 March 1994 (04.03.94) (30) Priority Data: PL 7603 4 March 1993 (04.03.93) AU (71)(72) Applicant and Inventor: KELLER, Peter, William [AU/AU]; 5 Lamb Street, Bellevue Hill, Sydney, NSW 2023 (AU).</p>		<p>(81) Designated States: AU, CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  Published With international search report.</p>
<p>(54) Title: ANTI-SNORE TRAINING DEVICE AND METHOD OF USING THE SAME</p> <p>(57) Abstract</p> <p>The device made of stretchable or elastic material comprises a chin rest or support (3) engageable under the chin and strap means (1, 2) adapted to bear against the head at a location opposite the chin so as to urge the lower jaw towards the upper jaw. Thus supporting the mandible, the device improves the tongue posture, achieving a correct swallowing pattern, reducing mouth breathing and facilitating nasal respiration. Snoring is overcome through temporary use of the device.</p> 		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

## ANTI-SNORE TRAINING DEVICE AND METHOD OF USING THE SAME

Field of the Invention

This invention is directed to a device and method for training a person to stop snoring and to reduce or eliminate  
5 bruxing (i.e., grinding of teeth), and clenching of teeth.

Background of the Invention

Aside from the strain that snoring often places on relationships, it may also be associated with many other biological problems and disorders, including sleep apnoea,  
10 where breathing actually stops for short periods during sleep.

Snoring is caused by the soft palate vibrating as air is sucked into the mouth over the top side of the tongue. To avoid snoring, the mouth must remain closed during sleep and the tongue must be in the correct position behind the teeth at  
15 or against the roof of the mouth.

Summary of the Invention

The present invention provides a anti-snore training device to improve the location of the mandible (lower jaw) and help protect the integrity of the temporo mandibular joint  
20 (T.M.J.), improve tongue posture by causing the tip of the tongue to assume its correct rest position against the rugae in the hard palate, thereby assisting in achieving a correct swallowing pattern which consequently may also reduce or eliminate habitual mouth breathing (that is the tendency to  
25 breath constantly through the mouth) and thereby facilitating unimpeded entry and easy nasal respiration by training the mouth to assume a correct sleeping posture.

Consequently, it may also help asthma, hayfever and allergy sufferers. Further, it may be used to prevent open  
30 bites developing during orthopaedic and/or orthodontic therapy.

It may also increase lung capacity and help slow the formation of second or double chin.

The present invention provides a device comprising a chin rest or support engageable under the chin and strap means adapted to bear against the head at a location substantially opposite the chin, so as to urge the lower jaw towards the upper jaw.

The chin rest can be made of same material, or another than that of the strap means.

The strap means is preferably adjustable in length, and may be made of stretchable or elastic material, or alternatively formed of two bands adjustable in length by fastening means such as metal or plastic clips, buckles or like.

According to a simplified embodiment of the invention, the device is of unitary or even one-piece elastic or stretchable material construction. Such a device is easy to adjust on the head of the wearer or user. It is also inexpensive to manufacture.

Further features and advantages of the invention will be brought into evidence in the description which follow with reference to the accompanying drawings wherein:

#### Brief Description of the Drawings

Figure 1 is a side profile view of a person's head with the device in a first preliminary position in which one loop thereof is around the person's neck;

Figure 2 is a view similar to that of Figure 1 with the device in a second preliminary position with another loop thereof running from the chin to the top of the head;

Figure 3 is a view similar to that of the preceding figures with the device in its operative position on the wearer's head; and

Figure 4 illustrates a front view of another embodiment of the device in position on a wearer's body.

#### Description of Preferred Embodiments of the Invention

Anti-snore training device for mitigating or eliminating snoring according to a first embodiment of the

invention, as illustrated on figures 1-3, is of one single piece elastic or stretchable material construction. It comprises two loops, a so-called first loop 1 and a so-called second loop 2 which is shorter in circumferential length than the first loop.

The first and second loops are joined by a wider connecting zone or band of material forming a chin rest or support 3 adapted to be engaged under and laterally around the chin area and thus support the mandible or lower jaw. When positioned on the wearer the chin rest 3 "cups" the chin.

As illustrated on figure 1, the wearer first passes the second, longer loop 2 over his head and pulls it down so that it extends around his neck. The first loop 1 and the chin rest 3 are brought to the position illustrated in Figure 1 in which the connecting zone is substantially in circumferential alignment with the adam's apple and the first loop protrudes forward therefrom or may hang against the wearer's chest.

As illustrated on figure 2, the wearer then pulls the first or shorter loop 1 thereby stretching the same and positions it so that the remote portion of the loop substantially diametrically opposite the connecting zone 3 bears against the highest point of his head, substantially in the plane of symmetry of the skull. Thus, the top of the first loop sits snugly obliquely around the head slightly forwardly of the ears and the chin rest 3 bears under the chin and extends laterally around the chin area and cups the same.

Thereupon the wearer pulls the second loop 2 from its initial position around the neck (counterclockwise as illustrated) up over his head as indicated by the arrow in Figure 3 beyond the second loop until it sits snugly forwardly of the first loop 1 and forwardly of the wearer's ears in the position illustrated on figure 3. In this position the second loop lies in a substantially vertical plane. Both loops 1 and 2 and the chin rest 3 may then be further adjusted to enhance wearer comfort and ensure the best retention on the head during sleep.

The straps are preferably as thin as possible as

regards both band width and thickness as the strength of the elastic material will permit thereby avoiding tear or rupture in use.

In its operating position the resultant force applied to the underside of the lower jaw with chin rest is sufficient to oppose gravitation force.

The material is preferably washable but nonshrinking under normal washing and drying conditions.

The embodiment of the device is preferably made of LYCRA, silicone, rubber, stretch jersey or any sufficiently stretchable and strong material.

The present device treats snoring in three highly effective ways. First, it firmly supports the lower jaw, ensuring that the tongue sits in the correct position, that is to say behind the teeth and subjacent the roof of the mouth. Secondly, it prevents the jaw from drooping or opening and the tongue from curling back toward the rear of the mouth, partially or fully obstructing the airway. Thirdly, the device induces or results in nasal breathing by training the mouth to assume the correct sleeping posture on its own, that is without further use the device, which has been found to be possible in most cases.

Thus, the present invention not only provides means to eliminate or greatly diminish snoring by donning the anti-snore training device nightly, but also trains the jaw and tongue so that snoring is overcome through temporary use of the device.

To this end a procedure or method has been devised to train the person's jaw and tongue.

The anti-snore device is worn during sleep for a first period of one week to two months and preferably two weeks. Thereafter, for a second period of from one to three months and preferably one month, it is only to be worn for a duration of say one hour before going to sleep. In this one-hour exercise period, the following series of exercises is repeated six times.

A. The wearer positions the tip of his tongue against the rugae of the hard palate, that is the rough area on the roof of one's mouth, just behind the front teeth of the upper jaw.

B. The wearer inhales slowly and continuously through his nose for 5 to 15 seconds and preferably 10 second by slowing counting to 10.

5 C. He then exhales slowly and continuously through his nose, again for 5 to 15 seconds and preferably 10 seconds by slowing counting to 10.

D. When saliva wells up in his mouth, the wearer clenches on his back teeth, feeling the muscles on the sides of his jaw contracting, and then swallows deeply. Then he  
10 resumes breathing as described at B and C.

Furthermore, to achieve optimal results a properly constructed and designed dental splint may have to be worn during sleep. Such dental splints are well known to those skilled in the art and will not be described herein.

15 By means of these exercises the user will be able to maintain the correct freeway space, that is the correct distance, usually 2-4 mm, between the incisal edges of the upper and lower teeth are spaced or separated so as to achieve neuromuscular relaxation.

20 The present invention thus provides a simple and economic device and method to overcome snoring avoiding more constraining treatments.

The embodiment of the device shown on figure 4 comprises, in addition to the same structural elements as the  
25 embodiment previously described and illustrated, two long straps 4, 5 extending from the front of the forwardmost, second loop 2 in a zone straddling the plane of symmetry of the skull. The second or forward and first or rearward loops 1, 2 and straps 4, 5 respectively, are joined together at this location  
30 by a small skull cap or pad 6 preferably made of the same material as that of the loops.

The two straps 4, 5 are long enough to extend under the arm pits, and around the wearer's back (not shown) and then to be securely tied or fastened by a Velcro fastening means,  
35 preferably at the middle of the wearer's chest as shown. In the operative position the straps 4,5 lie substantially at the level of the armpits.

The straps urge the head forwardly about 10° to 25° and preferably about 15°. This arrangement is devised so that the cervical spine remains straight and does not bend in such way that it could cause obstruction of the airway.

- 5           If necessary a cervical brace (made of plastic foam material and well known in the art) may also be worn to prevent the head from leaning too far forwardly.

- Before using the anti-snore training device according to the invention, a respiratory specialist may be consulted to  
10   ensure that the nasal passages are wide enough to allow breathing through the nose.

Such a device is intended to be worn during sleep but may be worn during waking hours especially during periods of stress.

- 15           Various modifications may be incorporated in the device embodiments of which have been described and illustrated herein without extending beyond the scope of the invention defined the appending claims.

What is claimed is:

1. An anti-snore device comprising a chin rest or support engageable under the user's chin and strap means adapted to bear against the head at a location substantially opposite the chin, so as to urge the lower jaw towards the upper jaw.

2. A device according to claim 1 wherein said strap means comprises two loops (1, 2,) said chin rest (3) joining said loops together.

3. A device according to claim 2 characterized in that in the operative position of the device one of said loops (1) is in bearing engagement with a zone of the head substantially diametrically opposite the chin.

4. A device according to claim 2 or 3 characterized in that in the operative position of the device one of the loops (2) lies in a substantially vertical plane.

5. A device according to any one of the preceding claims characterized in that it is of unitary elastic or stretchable material construction.

6. A device according to claim 5 characterized in that said device is of one-piece construction.

7. A device according to any one of the preceding claims characterized in that the strap means comprise bands of adjustable length.

8. A device according to claim 7 characterized in that adjustable fastening means are provided for adjusting the length of the strap means.

9. A device according to any one of the preceding claims characterized in that it further comprises two additional straps (4, 5) extending from a forwardmost one of said loops for encircling the upper body substantially at the level of the arm pits in the operative position of the device.

10. A method for anti-snore training or using an anti-snore training device comprising the steps of:

-providing an anti-snore device comprising a chin rest or support engageable under the user's chin and strap means adapted to bear against the head at a location substantially

opposite the chin so as to urge the lower jaw towards the upper jaw;

- donning the device nightly for a first period of one week to two months; and

5       - thereafter donning said device for a duration of thirty minutes to two hours prior to going to bed for a second period of from one to three months.

11. A method according to claim 10 characterized in that said first period is about two weeks.

10       12. A method according to either claim 10 or 11 characterized in that said second period is about one month.

13. A method according to any of claims 10 to 12 characterized in that said duration is about one hour.

15       14. A method according to claim any of claims 10 to 13 characterized in that during said second period the wearer, the following exercises are carried out:

A. positioning the tip of his tongue against the rugae of the hard palate,

20       B. slowly and continuously inhaling through the nose for 5 to 15 seconds,

C. then slowly and continuously exhaling through the nose for 5 to 15 seconds.

25       15. A method according to claim 14, characterized in that after step C the exercise includes the following additional step:

D. when saliva wells up in the mouth the wearer clenches his back teeth, feeling the muscles on the sides of his jaw contracting, and then swallows, and thereafter steps B and C are repeated.

FIG. 1

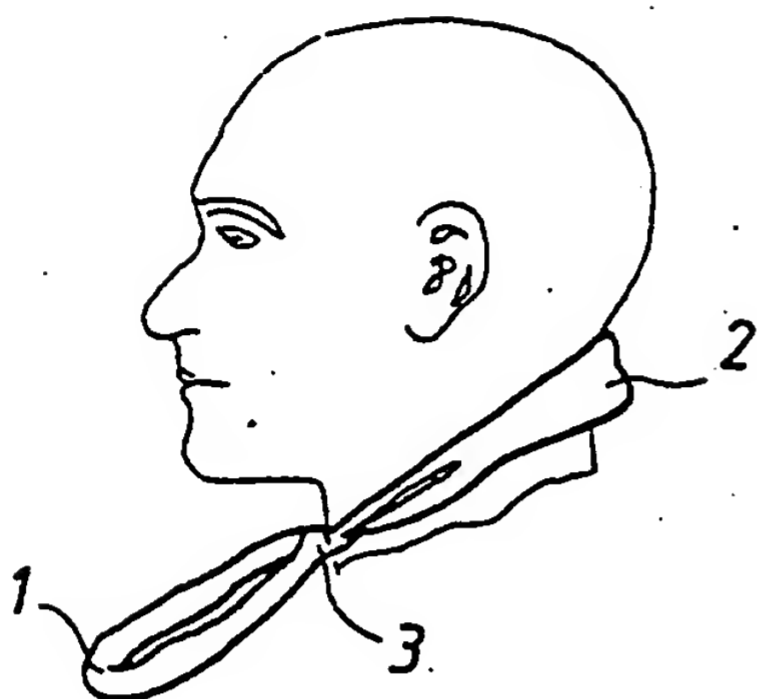


FIG. 2

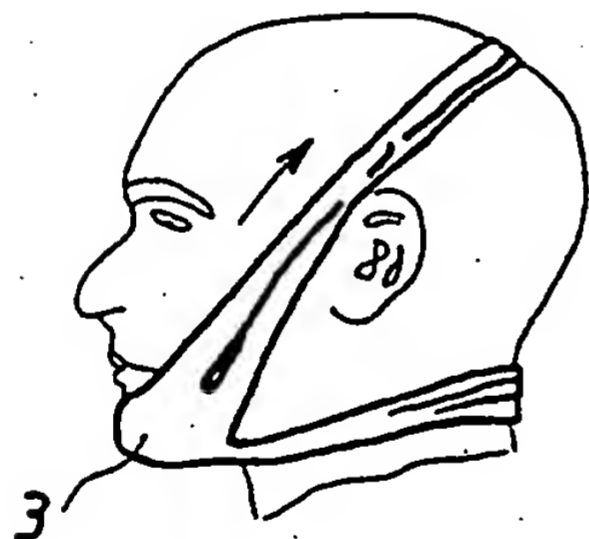


FIG. 3

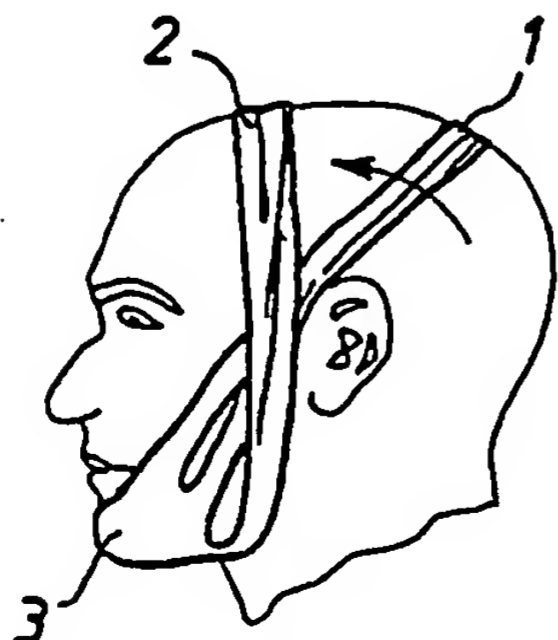
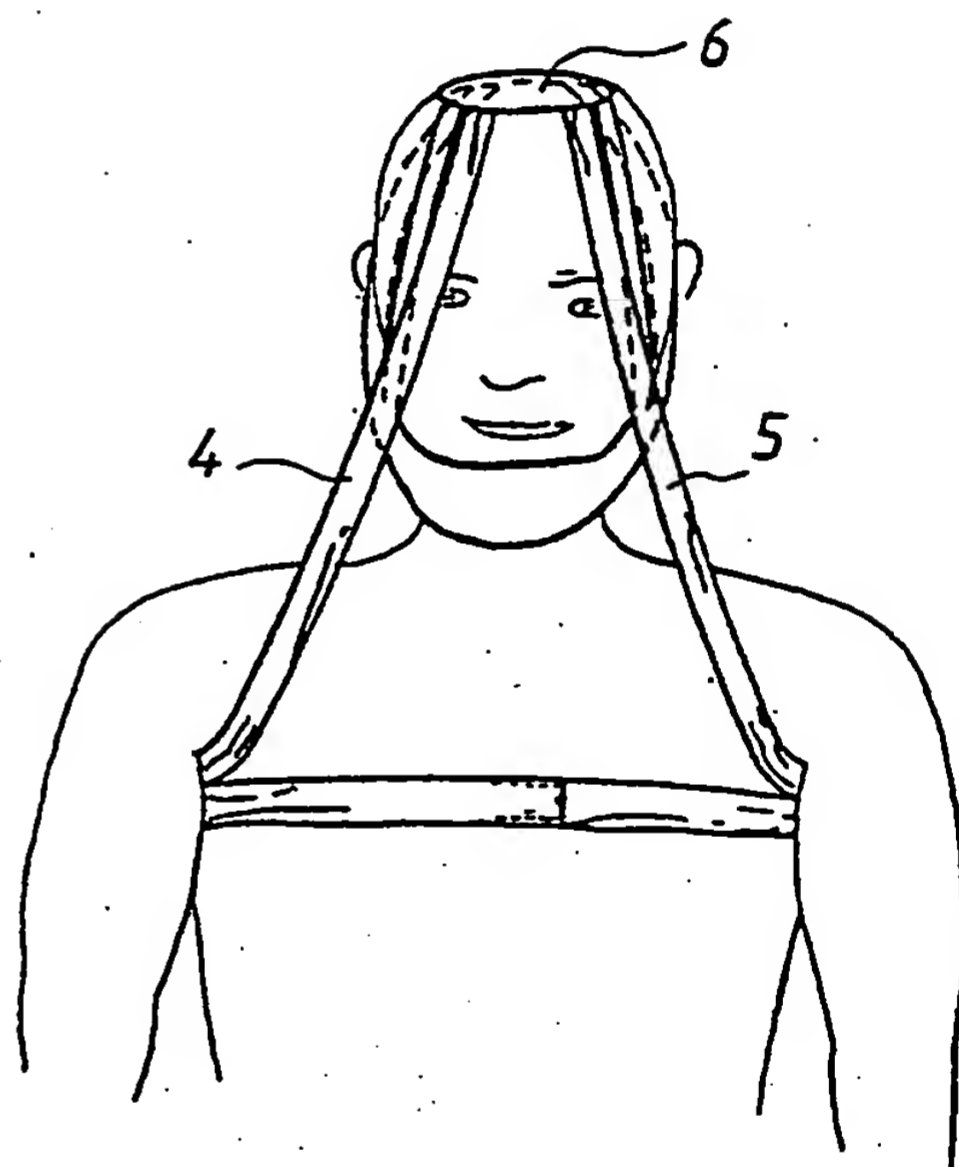


FIG. 4



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 94/00099

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> Int. Cl. <sup>5</sup> A61F 5/56  According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>  Minimum documentation searched (classification system followed by classification symbols) IPC A61F 5/00, 5/01, 5/56  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC as above  Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.		
X	GB,A, 2048677 (Howard) 17 December 1980 (17.12.80) whole document	1-3, 5, 6		
X	AU,A, 613/31 (Winston) 31 December 1931 (31.12.31) whole document	1-3, 7, 8		
X	US,A, 1339865 (Rothenberger) 11 May 1920 (11.05.20) whole document	1-4, 7, 8		
<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.         </div> <div> <input checked="" type="checkbox"/> See patent family annex.         </div> </div>				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">           * Special categories of cited documents :            "A" document defining the general state of the art which is not considered to be of particular relevance            "E" earlier document but published on or after the international filing date            "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)            "O" document referring to an oral disclosure, use, exhibition or other means            "P" document published prior to the international filing date but later than the priority date claimed         </td> <td style="width: 50%; vertical-align: top;">           "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention            "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone            "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art            "&amp;" document member of the same patent family         </td> </tr> </table>			* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family			
Date of the actual completion of the international search 21 June 1994 (21.06.94)		Date of mailing of the international search report 30 June 1994 (30.06.94)		
Name and mailing address of the ISA/AU  AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION PO BOX 200 WODEN ACT 2606 AUSTRALIA  Facsimile No. 06 2853929		Authorized officer  J HO  Telephone No. (06) 2832329		

# INTERNATIONAL SEARCH REPORT

## Information on patent family member:

International application No.

**PCT/AU 94/00099**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
GB	2048677	
US	3572329	
FR	1565558	

END OF ANNEX